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References

Ewha Campus Complex

Uponor involvement

✓ 2000 m2

Ewha Campus Complex

Ewha Womans University had planned the underground campus, which is a global trend for space creation, in order to solve the problem that the available space on the ground was insufficient despite the increase in the space demand in the campus, in accordance with the Ewha Womans University Development Plan in the 21st century.

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Project Facts:

Location
Seoul, Korea (Republic of)

Completion
2016

Building Type
Multi storey building

Product systems
Radiant Heating & Cooling

Address
52, Ewhayeodae-gil, Seodaemun-gu, Seoul, Korea

Website
http://www.ewha.ac.kr/

Project Type
Renovation

Partners

Enduser

Ewha Womans University
52, Ewhayeodae-gil, Seodaemun-gu,
Seoul, Korea

Architect

Dominique Perrault
6, rue Bouvier 75011 Paris, France

BAUM architect
286 Gangnam-daero, Gangnam-gu,
Seoul, Korea

M&E

HIMEC
53, Yangsan-ro, Yeongdeungpo-gu,
Seoul, Korea

Construction

Samsung C&T
145 Pangyoyeok-ro, Bundang-gu,
Seongnam-si, Gyeonggi-do, Korea

The Ehwa Campus Complex is equipped with Uponor TABS (thermally activated Building system) using geothermal energy as a heat source. TABS, also known as CCA(Concrete Core Activation), utilizes the concrete's thermal mass by embedded pipes carrying water for heating and cooling in the building's structure. The embedded pipes activate the concrete core in the building mass for storage and discharge of thermal loads.

The TABS applied to Ewha Campus Complex is installed in the classroom space of approximately 2,000㎡ and is operating at 17/21℃ for cooling and 29/26℃ for heating.(Cooling capacity is about 30 W/㎡, heat source capacity: 156 USRT) In order to prevent temperature change due to pressure drop in piping, all piping lengths are designed to be the same, and coils are installed as 150mm pitches, intervals of 150mm, based on the results of heat transfer analysis.

In the case of this building, groundwater can be used to operate TABS for air conditioning 24 hours a day, and the HVAC duct is installed to the minimum size for ventilation. In addition to TABS, the Ewha Campus Complex is applied as a thermal labyrinth system and a system that can utilize geothermal energy and groundwater to save energy in heating and cooling. By dispersing the peak load during the heating and cooling period, the capacity of the heat source equipment was reduced by more than 40%, and energy saving of about 25 ~ 30% was achieved.

This building is total floor space of about 69,000㎡ and 6 basement floors. This has the valley in the center which is used to introduce natural light into the interior to create comfortable and environmentally friendly space.

This project is composed of not only the main building construction but also underground parking lot ramp, main gate and ground level garden construction, in so doing, it has changed the face of Ewha Womans university.

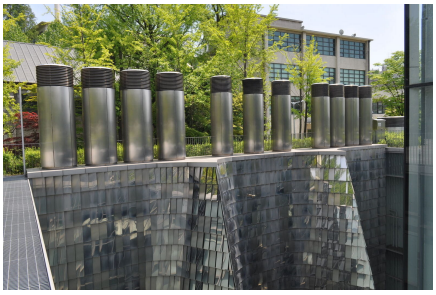
Ewha Campus Complex











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